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10/591,701	07/09/2007	Dietmar Lerche	1033415-000002	2957

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EXAMINER	
HENSON, MISCHITA L	

ART UNIT	PAPER NUMBER
2857	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/591,701	LERCHE ET AL.	
	Examiner	Art Unit	
	Mi'schita' Henson	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the amendment filed on April 7, 2009. Claims 1-12, 14 and 16 have been amended. Claims 17-20 are new. Claims 1-20 are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-10 and 17-20 are rejected under 35 U.S.C. 101 because the claimed invention is neither tied to a machine or apparatus, nor does it perform a transformation. As currently presented, the method steps in claims 1-10 and 17-20 need not be performed by a specific machine.

Based on recent Court decisions, it has been held that a §101 process must (1) be tied to another statutory class (a particular machine or apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. Thus, to qualify as a §101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example, by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example, by identifying the material that is being changed to a different state.

As such, claims 1 and 18 only recites a method that includes steps that could be purely mental and the claim does not in any way tie the process to another statutory class nor does the claim transform an article to a different state or thing. Such claims are therefore non-statutory under 35 U.S.C. 101.

Claims 2-10, 17 and 19-20 do not remedy the deficiencies of the claims from which they depend, with respect to 35 U.S.C. 101.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1- 10 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, as presented all of the claimed steps (e) - (j) are indicated to be optional making the scope of the claim unclear. One of ordinary skill in the art would not be able to ascertain the meets and bounds of the claim, therefore the recitation of "optionally" renders the claim indefinite.

Claims 2-10 inherit the limitation(s) of the claim(s) from which they depend.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, because it includes the limitation "further comprising calculating and extinction profile $E_T(t, r)$ by finding a log of a ratio $I_O(t, r)/ I_T(t, r)$". Claim 19 depends from claim 18 and claim 18 recites determining $I_O(t, r)$ and $I_T(t, r)$ in an ***and/or*** (i.e. or) relationship with $I_S(t, r)$ thereby providing a conditional limitation that can be met by *either* $I_O(t, r)$ and $I_T(t, r)$ *or* $I_S(t, r)$. Therefore, in conditions where $I_S(t, r)$ is determined rather than $I_O(t, r)$ and $I_T(t, r)$ (i.e. $I_O(t, r)$ and $I_T(t, r)$ have not been determined), the limitation "further comprising calculating and extinction profile $E_T(t, r)$ by finding a log of a ratio $I_O(t, r)/ I_T(t, r)$" becomes indefinite.

Claim 20 inherits the limitation of the claim from which it depends.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 4, 11 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in US Patent 5,095,451 (as they are best understood).

Regarding claim 1, Allen teaches:

Method for an automatic determination of physical, technical method and/or colloidal chemistry parameters by a determination of an attenuation of radiated waves (see attenuate the beam, column 5 lines 19-21; see also column 6 lines 9-11) during a segregation of monodisperse or polydisperse dispersion samples (see dispersed particles, column 3 lines 45-46) subjected to gravitation or centrifugation, (see Abstract; see also centrifugal force, column 3 lines 45-47; see also gravitational or centrifugal force, column 1 lines 17-18) comprising:

(a) during the segregation by centrifugation or gravitation, repeatedly determining and recording momentary transmission values $I_T(t, r)$ current segregation status of the waves radiated with intensity values $I_o(t, r)$ and/or the instantaneous scattering values $I_s(t, r)$ as a function of a position r within the samples a time t, for one or more wavelengths over the entire length of each sample or in selected partial sections of each sample, simultaneously for multiple samples; (see for example “subjected to

centrifugal force", Abstract; see "gravitational or centrifugal force", column 1 lines 14-29, column 2 lines 42-59 and column 3 liens 45-47; and see for example "intensity of a beam" and "intensity/position/time data are analyzed", column 3 lines 4-18 and column 2 lines 37-41; see also "scatter…the incident beam", column 5 lines 17-25).

(b) calculation a extinction profile $E_T(t, r)$ by finding a log of a ratio of $I_o(t, r) / I_T(t, r)$ for a determination of a particle or droplet concentration for the dispersion samples as a function of sample position and time (see "a beam of radiation from a radiation source", "generating radiation transmission data" and radiation density Q, column 3 line 45- column 4 line 30; see also column 6 line 63- column 7 line 5);

(c) from the extinction profiles $E_T(t, r)$ determined at different times and a local adjustment made in time segments, calculating segregation speeds for any constant extinction values ("radiation detector continually generating radiation transmission data" is interpreted to be determined at different times and the local adjustment made in these time segments, column 3 lines 45-56);

(d) from a ratio of the segregation speeds determined for specific extinction percentiles, calculating a polydispersity index, which is characteristic for the polydispersity of the density or a particle or droplet size (see particle size and D_m, column 3 line 60 - column 4 line 3 and column 4 lines 54-61).

(e) optionally, calculating extinction-weighted distributions of the particle or droplet size from extinction profiles $E_T(t, r)$ for selectable times while standardizing on the maximum extinction for this profile (see particle size distribution and $F(D_m)$, column 4 lines 30-61);

(f) optionally, calculating the cumulative volume-weighted distributions of the particle or droplet size from any extinction profiles acquired at time t (see "radially scanning a suspension…continually generating radiation transmission data (i.e. profiles acquired at time t), column 3 lines 45-60) according to (b), wherein

(1) the volume-specific extinction cross section that is dependent on particle size and is calculated according to Mie-theory while including the device constants from known optical parameters of the samples, or

(3) the volume-specific extinction cross section that is dependent on particle size is determined if the course of the extinction is determined during the segregation of at least one polydisperse substance system with similar optical characteristics corresponding (see particle diameter, column 4 lines 38-50 and optical radiation, column 5 lines 26-38) to (b);

Allen differs from the claimed invention in that it does note explicitly teach obtaining the transmission data simultaneously for multiple samples. It would have been obvious to one of ordinary skill in the art would to simultaneously measuring multiple samples as it would decrease the amount of sample processing time and increase the speed and efficiency of analyzing the samples, thereby increasing the utility of the system.

Regarding claim 2, Allen teaches the limitations of claim 1 as indicated above. Further, Allen teaches:

Method according to claim 1, wherein the particle or droplet sizes and their distribution are determined (see determining particle sizes, Abstract, column 1 lines 12-16).

Regarding claim 4 Allen teaches the limitations of claim 1 as indicated above. Further, Allen teaches:

Method according to claim 1, comprising calculating the apparent relative viscosity as a function of the concentration by volume from the hindrance function taking into account the concentration by volume (see hindered settling, concentrations and viscosity, column 5 lines 25-66).

Regarding claim 11, Allen teaches:

Device for an automatic determination of selected physical, technical method and/or colloidal chemistry parameters comprising (see Abstract; see also parameters affect important physical and chemical properties, column 1 lines 7-10), consisting of a PC-controlled (see computer and CPU, column 1 lines 45-48, column 2 lines 64-65 and Fig. 5) multi-sample receptacle unit arranged vertically or horizontally with a spectrometric measurement device with a source producing monochromatic parallel radiation (see tank, horizontally and vertically, column 8 line 65 - column 9 line 10 and Figs. 1 and 4), which registers (measures is interpreted to be registers), digitizes (see sampling intervals, column 11 lines 35-36, column 12 lines 16-18) and stores (see memory, column 1 lines 45-48) the radiation intensity scattered or transmitted (see “read intensity output from the detector, column 11 lines 36-37) by the respective dispersion sample over the entire length of the sample simultaneously or shifted

temporally during the segregation, resolved for location and time (see time and radial position, column 6 lines 63-68).

Allen differs from the claimed invention in that it does not necessarily teach multi-sample receptacle unit. One of ordinary skill in the art would have understood that the sample receptacle could be a multi-sample or a uni-sample unit and that a multi-sample receptacle unit would allow for the simultaneous analysis of multiple samples thereby improving the utility of the system.

Regarding claim 15, Allen teaches the limitations of claim 11 as indicated above. Further, Allen teaches:

Device according to claim 11 wherein the multi-sample receptacle unit is designed as a rotor (see "is capable of being rotated in order to induce a centrifugal force field, column 2 lines 60-62), and is driven by a motor (see motor, column 8 lines 50-53 and Fig. 2; see also stepper motor, column 12 line 31) with programmable variable and/or constant revolutions.

Regarding claim 16, Allen teaches the limitations of claim 11 as indicated above. Further, Allen teaches:

Device according to claim 11, wherein the multi-sample receptacle is capable of accepting samples placed vertically for segregation in the gravitational field (see tank, horizontally and vertically, column 8 line 65 - column 9 line 10 and Figs. 1 and 4).

Regarding claim 17 Allen teaches the limitations of claim 1 as indicated above. Further, Allen teaches:

Method according to claim 1, wherein the physical, technical method and/or colloidal chemistry parameter that is determined is selected from the group consisting of particle size, distribution of particle size, speed distribution, particle flux, hindrance function, index of structural stability and a combination thereof (see particle size distribution, Abstract, column 1 lines 6-7 and column 2 lines 48-59; see also geometric particle size, column 12 lines 8-15).

Regarding claim 18, Allen teaches:

Method for an automatic determination of physical, technical method and/or colloidal chemistry parameters by a determination of an attenuation of radiated waves during (see attenuate the beam, column 5 lines 19-21; see also column 6 lines 9-11) a segregation of monodisperse or polydisperse dispersion samples (see dispersed particles, column 3 lines 45-46) subjected to gravitation or centrifugation (see Abstract; see also centrifugal force, column 3 lines 45-47; see also gravitational or centrifugal force, column 1 lines 17-18), comprising, during the segregation by centrifugation or gravitation, repeatedly determining and recording momentary transmission values $I_T(t, r)$ characterizing a current segregation status of the waves radiated with intensity values Io(t, r) and/or instantaneous scattering values $I_s(t, r)$ as a function of a position r within the samples at a time t, for one or more wavelengths over the entire length of each sample or in selected partial sections of each sample, simultaneously for multiple samples (see for example “subjected to centrifugal force”, Abstract; see “gravitational or centrifugal force”, column 1 lines 14-29, column 2 lines 42-59 and column 3 liens 45-47; and see for example “intensity of a beam” and “intensity/position/time data are

analyzed", column 3 lines 4-18 and column 2 lines 37-41; see also "scatter…the incident beam", column 5 lines 17-25).

Regarding claim 19 Allen teaches the limitations of claim 18 as indicated above. Further, Allen teaches:

Method according to claim 18, further comprising calculating an extinction profile ET(t, r) by finding a log of a ratio of Io(t, r) / IT(t, r) for a determination of a particle or droplet concentration for the dispersion samples as a function of sample position and time (see "a beam of radiation from a radiation source", "generating radiation transmission data" and radiation density Q, column 3 line 45- column 4 line 30; see also column 6 line 63- column 7 line 5).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in US Patent 5,095,451 as applied to claim 1 above, in view of Tomimasu et al. in US Patent 4,975,578 (as is best understood).

Regarding claim 7, Allen teaches the limitations of claim 1 as indicated above. Allen differs from the claimed invention in that it does not necessarily teach the mass density distribution of a sample is calculated from the extinction profile.

Tomimasu et al. teaches determining the distribution of mass density of a sample via irradiating it with a burst of electron beams, wherein the attenuated intensity of the electron beams is detected by a detector and converted into mass density information (Abstract, column 2 lines 37-52 & 61-64, column 3 lines 59-67, column 4 lines 20-23). One of ordinary skill in the art would have understood that the intensity and

transmission rate of the electron beams (i.e. extinction profile) is considered when determining the mass density distribution.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Tomimasu et al. with Allen because Tomimasu et al. teaches a method and apparatus for measuring the distribution of mass density of materials using electron beams (column 1 lines 6-11) that provides “accurate, objective measurements at a relatively low cost” (column 3 lines 19-21).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in US Patent 5,095,451 as applied to claim 1 above, in view of Lerche et al. in US Publication 2002/0147563 (as is best understood).

Regarding claim 10, Allen teaches the limitations of claim 1 as indicated above. Further, Allen teaches:

Method according to claim 1, wherein the control of the segregation analyzer and the measurement sensor, including radiation source, sample management and data transfer, data handling and data storage, as well as all steps of analysis and the documentation of the results (see Abstract; see CPU, column 1 lines 45-48; see analysis and software program, column 13 lines 38-59), takes place by means of software supported by a database.

Allen differs from the claimed invention in that it does not necessarily teach a database. Lerche et al. teaches a database (see database, [0028] and Fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made

to have combined the teachings of Lerche et al. with Allen because Lerche et al. teaches a method and device for direct estimation/identification of separation processes of disperse material systems ([0002]) using database, thereby improving the functionality of the system.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in US Patent 5,095,451 as applied to claim 11 above, in view of Lerche et al. in US Publication 2002/0147563 and Wood et al. in US Patent 3,344702 (as is best understood).

Regarding claim 12, Allen teaches the limitations of claim 11 as indicated above. Allen differs from the claimed invention in that it does not necessarily teach different cuvettes matched to the measurement task, cuvette type detected automatically or a database. Lerche et al. teaches a database (see database, [0028] and Fig. 3). Wood et al. teaches a cuvette positioning device with plurality of cuvettes wherein the positioning can be programmed and a detecting device (a cuvette positioning device is interpreted to be a devices that matches the cuvettes to the measurement task, detecting device is interpreted to detect the cuvette type, column 2 lines 10-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Lerche et al. and Wood et al. with Allen because Lerche et al. teaches a method and device for direct estimation/identification of separation processes of disperse material systems ([0002]) using database and Wood et al. teaches an apparatus [utilizing cuvettes] for measuring

the absorbance of light in a multiplicity of sample of substances (column 1 lines 18-23), thereby improving the functionality of the system.

Response to Arguments

7. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mi'schita' Henson whose telephone number is (571) 270-3944. The examiner can normally be reached on Monday - Thursday 7:30 a.m. - 4:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mi'schita' Henson/
Examiner, Art Unit 2857

/Eliseo Ramos-Feliciano/
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